Remarks

Claims 1-18 are pending. Claims 1-6, 8-15, 17-18 are rejected. Claims 7 and 16 are objected to. Applicants respectfully traverse the rejection and request allowance of claims 1-18. Applicants have elected to decline the proposed amendment suggested by the Examiner in a telephone interview conducted between the Examiner and applicant's agent David Wilbert on May 21, 2007.

Claims 1-6, 8-15, and 17-18 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 5,398,554 (Ogawa).

Independent claims 1 and 10 require a balance system sized and located such that the **momentum** of the balance system is equal and opposite to the momentum of the drive system. Not only is the size (or weight) of the balance system important, but also the precise position of the balance system on the flow conduit important. If the correct size is chosen to offset the drive system, but it is not in the correct location, the momentum of the balance system will be equal, but not opposite the drive system. Advantageously, the claims may be implemented in some embodiments to counter the vibrations that occur as a result of the imbalance due to the driver mass.

Ogawa does not disclose a balance system that provides a momentum that is equal and opposite to the drive system. In contrast, Ogawa provides a weight that is bolted to the outer conduit to achieve equal natural frequencies between the inner conduit and the outer conduit. Ogawa does not discuss balancing the momentum of the drive system in order to reduce unwanted vibrations.

There are a number of differences between the claimed invention and the device disclosed in Ogawa. First, the claimed invention requires the drive system be coupled to the flow conduit. In contrast, in Ogawa, the frequency balancer 39 is attached not to the flow conduit, but to the balancing conduit (see col. 7, lines 53-57). This is significant because Ogawa is concerned with matching the frequency of the balancing conduit with that of the flow conduit. This is substantially different than the claimed invention. The claimed invention addresses the problem of momentum imbalances of the flow conduit without regard to imbalances in any secondary conduit.

If Ogawa's approach was applied to the claimed invention, the balance system would strive to achieve a substantially equal frequency between flow tube 103A and 103B. The claimed invention in contrast, achieves a substantially equal and opposite momentum between the drive system and the balance system of a given flow tube, i.e., either flow tube 103A **or** 103B. The claimed invention is not concerned with achieving an equal momentum balance between flow tube 103A and 103B.

Another difference between the claimed invention and Ogawa is the position of the balancing system on the tube. The balancing system of the claimed invention must be positioned in a specific place on the flow tube in order to achieve and equal and opposite momentum from the drive system. In contrast, the position of the balancer in Ogawa is not important. While the balancer is described as being positioned in the middle portion of the outer conduit (see col. 5, lines 44-45), this is not a critical feature. See for example in col. 9, equations 1 and 2. These are the equations to solve for the frequencies of both the outer counterbalancing conduit and the flow conduit. The only variables in these equations are the spring constant and the mass. Therefore, based on these equations, which Ogawa attempts to create substantially equal, the position of the counterbalance is not a factor.

A third difference is in the weight of the counter balance system. The claimed invention provides a balance system that is coupled to the at least one flow conduit and sized and located such that the momentum of the balance system is equal and opposite to the momentum of the drive system. Therefore, the balance system only needs to be sized and positioned one time, unless a different drive system is installed. The balance system of the claimed invention is not dependent on the fluid flowing through the flow conduit. This is in contrast to the counter balance in Ogawa. The counterbalancing system of Ogawa must be manually adjusted by either adding or reducing the weight each time a fluid with a different density is used (see col. 7, lines 58-63). Therefore, the counterbalancing system taught in Ogawa is dependent on the density of the fluid.

Independent claims 1 and 10 therefore include features that are not taught by Ogawa. Claims 2-9 and 11-18 depend from claims 1 and 10 and are therefore allowable for the same reasons as claims 1 and 10.

Conclusion

Applicants submit that there are numerous additional reasons in support of patentability, but that such reasons are moot in light of the above remarks and are omitted in the interests of brevity. Applicants respectfully request allowance of claims 1-18.

Please feel free to call me to discuss the patentability of the pending claims.

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